Guideline for Evaluating Patients for Rash Illness

Washington State Clinical Laboratory Advisory Council (CLAC)
May 2004

Patient with Acute, Generalized Vesicular or Pustular Rash Illness

Institute Airborne & Contact Precautions Alert Infection Control on Admission

Telephone Numbers For your Facility

Laboratory Director_____
Laboratory Supervisor_____
Lead Technologist_____
Infection Control_____
Local Health Jurisdiction_____
Washington State DOH, Communicable Disease Epidemiology: (206) 361-2914 or 1 (800) 539-4344

Low Risk of Smallpox
(see "Risk of Smallpox" below)

History and Exam Highly Suggestive of Varicella

Varicella Testing Optional

Diagnosis Uncertain

Test for Varicella and Other Conditions as Indicated

Moderate Risk of Smallpox (see "Risk of Smallpox" below)

ID and/or Derm Consultation Varicella +/- Other Lab Testing as Indicated

Non-Smallpox Diagnosis Confirmed Report Results to Infection Control

No Diagnosis Made Ensure Adequacy of Specimen ID/Derm Consultant Re-Evaluates Patient

Cannot Rule Out Smallpox Classify as High Risk

High Risk of Smallpox
(see "Risk of Smallpox" below)

ID and/or Derm Consultation Alert Local & State Health Departments Immediately

Response Team Advises on Management and Specimen Collection

Testing at CDC

NOT Smallpox Further Testing

SMALLPOX

RISK OF SMALLPOX

Low Risk of Smallpox - Manage as Clinically Indicated
1. No febrile prodrome
   OR
1. Febrile prodrome (see Major Smallpox Criteria) AND
2. Fewer than four Minor smallpox criteria (see Minor Smallpox Criteria)

Moderate Risk of Smallpox - Urgent Evaluation
1. Febrile prodrome (see Major Smallpox Criteria) AND
2. One other MAJOR smallpox criterion (see Major Smallpox Criteria)
   OR
1. Febrile prodrome (see Major Smallpox Criteria) AND
2. Four or more MINOR smallpox criteria (see Minor Smallpox Criteria)

High Risk of Smallpox - Report Immediately
1. Febrile prodrome (see Major Smallpox Criteria) AND
2. Classic smallpox lesion (see Major Smallpox Criteria) AND
3. Lesions in same stage of development (see Major Smallpox Criteria)

MAJOR SMALLPOX CRITERIA

FEBRILE PRODROME: occurring 1-4 days before rash onset: fever greater than or equal to 101ºF and at least one of the following: Prostration, headache, backache, chills, vomiting, or severe abdominal pain.

CLASSIC SMALLPOX LESIONS: deep-seated, firm/hard, round well-circumscribed vesicles or pustules; as they evolve, lesions may become umbilicated or confluent

LESIONS IN THE SAME STAGE OF DEVELOPMENT: on any one part of the body (e.g., the face, or arm) all lesions are in the same stage of development (i.e., all are vesicles, or all are pustules)

MINOR SMALLPOX CRITERIA

- Centrifugal distribution: greatest concentration of lesions on face and distal extremities
- First lesions on the oral mucosa/palate, face, or forearms
- Patient appears toxic or moribund
- Slow evolution: lesions evolve from macules to papules to pustules over days (each stage lasts 1-2 days)
- Lesions on the palms and soles

Differentiating Chickenpox From Smallpox

Chickenpox (varicella) is the most likely condition to be confused with Smallpox

In Chickenpox

- No or mild prodrome
- Lesions are superficial vesicles: "Dewdrop on a rose petal"
- Lesions appear in crops: on any one part of the body there are lesions in different stages (pustules, vesicles, crusts)
- Centripetal distribution: greatest concentration of lesions on the trunk, fewest lesions on distal extremities. May involve the face/scalp. Occasionally entire body equally affected.
- First lesions appear on the face or trunk
- Patients rarely toxic or moribund
- Rapid evolution: lesions evolve from macules; papules; vesicles; crusts quickly (<24 hours)
- Palms and soles rarely involved
- Patient lacks reliable history of varicella or varicella vaccination
- 50-80% recall an exposure to chickenpox or shingles 10-21 days before rash onset

Common Conditions That Might Be Confused With Smallpox

Condition	Clinical Clues
Varicella (Primary infection with varicella-zoster virus)	Most common in children <10 years; children usually do not have a viral prodrome
Disseminated herpes zoster	Immunocompromised or elderly persons; rash looks like varicella, usually begins in dermatomal distribution
Impetigo (*Streptococcus pyogenes*, *Staphylococcus aureus*)	Honey-colored crusted plaques with bullae are classic but may begin as vesicles; regional not disseminated rash; patients generally not ill
Drug eruptions	Exposure to medications; rash often generalized
Contact dermatitis	Itching; contact with possible allergens; rash often localized in pattern suggesting external contact
Erythema multiforme minor	Target, "bulls eye", or iris lesions; often follows recurrent herpes simplex virus infections; may involve hands and feet (including palms and soles)
Erythema multiforme (incl. Stevens Johnson Syndrome)	Major form involves mucous membranes and conjunctivae; may be target lesions or vesicles
Enteroviral infection esp. Hand, Foot and Mouth disease	Summer and fall; fever and mild pharyngitis 1-2 days before rash onset; lesions initially maculopapular but evolve into whitish-gray tender, flat often oval vesicles; peripheral distribution (hands, feet, mouth, or disseminated)
Disseminated herpes simplex	Lesions indistinguishable from varicella; immunocompromised host
Scabies; insect bites (incl. fleas)	Itching is a major symptom; patient is not febrile and is otherwise well
Molluscum cantagiosum	May disseminate in immunocompromised persons

Additional Smallpox Information

Laboratory Diagnostics: Clinical evaluation and a careful patient history of recent smallpox vaccination or contact with a recent vaccinee are the mainstays of diagnosis of smallpox vaccine-related adverse events. In situations where clinical diagnosis is not straightforward, laboratory diagnostics for vaccinia might be helpful and might prevent inappropriate use of potentially toxic therapies. However, diagnostics for conditions easily confused with vaccinia infection (i.e., varicella, herpes zoster, herpes simplex, and enteroviruses) should be considered first, in particular for a nonvaccinee or someone believed to be a noncontact of a vaccinee. Serologic testing for vaccinia is probably uninformative because it cannot be used to distinguish vaccinia immunity from vaccinia infection unless baseline antibody titers are available. Diagnostic tests for vaccinia include electron microscopy to identify presence of orthopoxvirus, and gene amplification (polymerase chain reaction [PCR]), and viral culture for vaccinia. Regarding vaccinia, these tests are available only for research purposes, but are undergoing multicenter validation studies that might enable FDA to approve the test reagents for diagnostic use. After that approval, testing will be made available through the Laboratory Response Network (LRN), an extensive system of public health and private laboratories that can be accessed through consultation with state and local health departments. Consultation regarding appropriate use of specialized vaccinia laboratory testing will be available through CDC.

Laboratory Specimen Collection: A suspected case of an adverse event after smallpox vaccination should be promptly reported to the appropriate local, state, or territorial health department. When appropriate, public health officials might recommend that clinical specimens be collected for further evaluation of a possible case.

Specimen Labeling and Handling: Label all tubes, vials, and microscope slide holders with patient's name, unique identifier, date of collection, source of specimen (vesicle, pustule, scab, or fluid), and name of person collecting the specimen.

Infection Control Procedures: Wear appropriate personal protective equipment. (Contact appropriate infection control personnel.)

Reference: Centers for Disease Control and Prevention Evaluating Patients for Smallpox, Version 1.0; January 31, 2002.

For more information, please go to the CDC website http://www.bt.cdc.gov/agent/smallpox/index.asp and http://www.bt.cdc.gov/EmContact/index.asp